Quantifying the Impacts of Tide Restrictions in Salt Marshes of Northern Puget Sound

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Abstract

Salt marshes in Puget Sound have experienced a long history of hydrologic alterations for agriculture and development; however, the ecological impacts of these modifications have not been quantified. This project compares insect, vegetation, and fish assemblages in tide restricted and natural salt marshes of Island County, Washington. A majority of fieldwork will take place during the spring and summer of 2003. Using aerial fallout traps, we will characterize insect abundance, composition, and biomass from distinct vegetation assemblages at each marsh. Given the importance of coastal wetlands for juvenile salmonids, particular emphasis will be placed on common salmon prey taxa. Ancillary data on vegetation composition and physical factors will be collected at multiple scales, to help explain insect assemblage patterns. Fish will be sampled in the main marsh channels during tidal exchange.

Preliminary results from pilot data suggest that similar insect taxa occur at all marshes: flies (esp. ceratopogonids, chironomids, ephydrids), mites and ticks, hemiptera, wasps (esp. chalcids), and thrips were particularly common. Differences in insect abundance and composition exist among marshes; however, they are not readily attributable to hydrologic alterations. Forthcoming data collection and analysis should provide a better understanding of factors controlling insect assemblages in these human-impacted systems.